technical manual for





STARTING OPERATIONS

- Open back door to extract power supply cable.
- Before connecting the game some inspections should be made.
 These visual inspections are important for the damages which might have been caused during transport.
 - 1. Check that all connectors are connected.
 - 2. Check that all mechanical parts are in correct position.
- Check that safety switch at the bottom back board works correctly and that is to say: When assembling back door and closing it slowly one should hear the microswitch contact shut off.
- 4. Make sure that earth socket is connected.

INSTALLATION AND MAINTENANCE

The CRT used in our games is like those emploied on regular television sets, therefore, please handle with care so as not to damage it.

- Do not set up the game in open and very lighted areas, as the quality of image would be greatly damaged.
- Do not set up the game close to heating sources and keep it 10 cm. from the back wall.
- If, when game is on, no image appears on the screen, check power supply fuses and if connectors are properly connected.
- If the screen is lit up but there is no image, check that C.P.U. board connectors are properly connected.
- If the image slowly moves toward the side, it can be caused by a close magnet or by a transformer which might cause strong wavinesses.

If, the game is turned around itself on power on, it might happen that the image on the screen will change colour. This is caused by the earth magnetic field.

To have the right colours again, only turn off the game for 5 minutes and then turn it on again.

PLEASE DO NOT CHANGE THE IMMATRICULATION LABELS BOTH ON THE CABINET AND ON THE ELECTRONIC BOARDS TO AVOID DISCUSSIONS IN CASE OF SERVICING.

VIDEO GAME "QUASAR" or "NOVA" DESCRIPTION OF THE GAME

The game consists in ending space missions by overcoming obstacles which appear from time to time, and avoiding enemies which attack player ship.

Each mission is divided in 4 phases (Phase 1,2,3,4)

Each phase is different both for the game and the scenery.

Each time a mission is finished, begins a new mission with greatest difficulties, and thus the player can test his skills forever.

The game can be for one or two players who will alternate each time a ship is hitted.

Each player has 2 pushbuttons (or a small lever) to move the ship to the left and right hand side during the first phase and to rotate it during the second and fourth phase, There is a firing pushbutton and one to advance everywhere in the screen.

PHASE 1

During the 1st phase the ship is at the bottom. Flying saucers appear from the top and advance toward the ship. Player has to fast eliminate them because at a given distance they fire missiles. Furthermore the ship slowly rises and risks to be hit from the bottom in case some flying saucers are able to pass below.

For each flying saucer hit 20 points are awarded.

The number of flying saucers is 8, during the second mission they will become 16.

PHASE 2

During the 2nd, phase the ship can be moved all around the monitor with pushbuttons.

This ship can be therefore rotated around itself or can advance. Enemies during this phase are of two different kind and arrive at random to the left and right hand side.

The score (3000) is indicated at the top right hand side. It is the quantity of energy supply available and will decrease automatically each time the player fires a missile.

In case the energy supply exhausts itself before having eliminated all the enemies, player ship will explode and the game will start again the 2nd. phase. If, on the contrary, the player succeeds and eliminates all his enemies, the remaining energy supply will be summed up to the player score.

There are, during this phase, 8 enemies, in the 2nd, mission they will become 16 with power supply of 5000.

For each ship hit 30 points are awarded.

PHASE 3

During the 3rd. phase there is at the top a big star ("QUASAR" or "NOVA") with an eye at the centre. This star sends a light beam to the player ship which is at the bottom.

The star and the light beam move to the left and right hand side and the player has to keep the ship within the light beam in order to be attracted toward the star avoiding the meteorites which he encounters during his trip.

When the eye of the star is hit the advancing speed increases.

If the ship leaves the light beam it will be automatically drawn back.

The light beam become thinner as time goes by. The star has therefore to be reached before the time exhausts itself, this has to be done in order to start the 4th phase.

If the light beam exhausts itself the ship will explode and the game will start at the 1st. phase, if, on the contrary, the ship is hitted by a meteorite the same will explode and the game will start at the 3rd. phase.

PHASE 4

During the 4th, phase the player ship is at the centre and is attacked by enemies appearing from everywhere which convey toward the centre. Player has to hit all enemies rotating around itself before they touch his ship.

The ship will explode if an enemy has reached it and the game will start from the beginning of the 4th, phase.

The ship movement is always toward the enemies, that is to say, every rotating movement made by the player with the ship is always in the direction of the enemies.

For each enemy shot 100 points are awarded.

The number of missions brought to an end is indicated with a asterisk over corresponding player score.

Game is over when all available ships are finished.

Extended play can be programmed (1 extra ship) at 5500 points or 7500 points or 9500 points.

Free play can be programmed only on random high score in one of the 4 range of scores which are:

10.000 + 11.500. or 12.500 + 14.000. or 15.000 + 16.500. or 17.500 + 19.000.

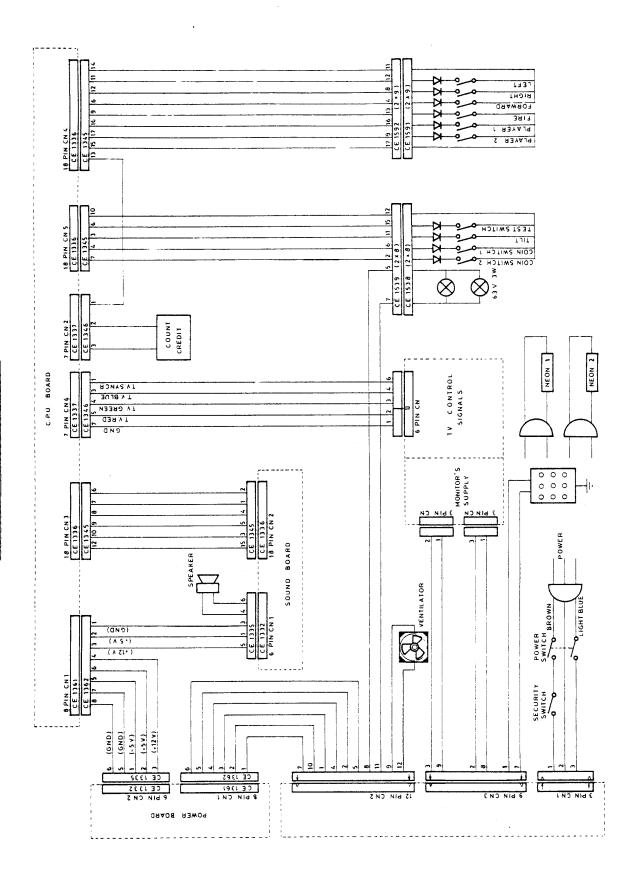
SWITCHES

ADJUSTMENT

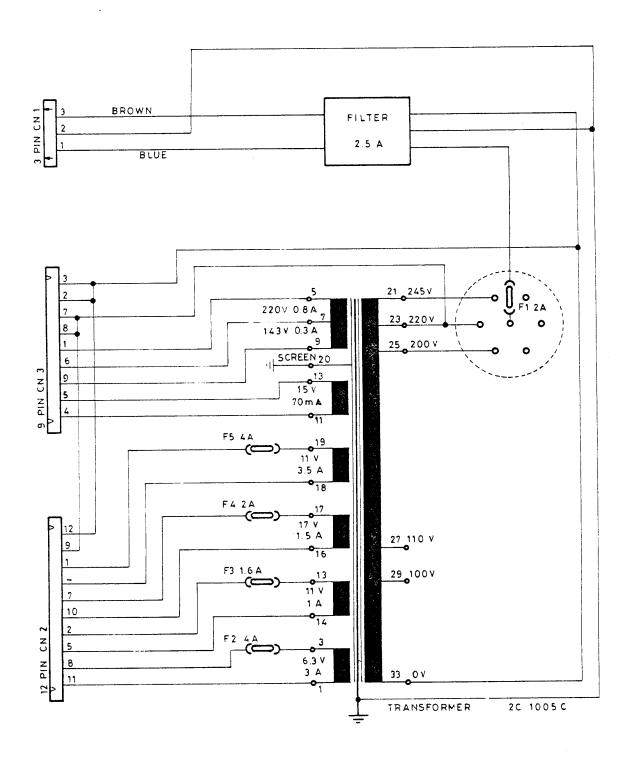
	SWITCH 1 (3M)								
	1	2	3	4	, 5	6	7,	8 ,	
E			ON	ON					2 coins 1 play
2			OFF	ON	İ				1 coin 1 play
ا – ع			ON	OFF	ļ				1 coin 2 plays
196			OFF	OFF					1 coin 3 plays
E	ON	ON							1 coin 1 play
5	OF F	ON							1 coin 2 plays
Coin schani 2									1 coin 3 plays
190	OFF	OFF							1 coin 5 plays
-					ON	ON			3 rockets
					OFF	ON			4 rockets
					ON	OFF			5 rockets
					OFF	OFF			6 rockets
							ON		Normal game
Ç							OFF		Free game
Ξ								ON	"Test "collis. excl.
E								OFF	"Game" collis. incl
	SERVICE mechanism mechanism 2	mechanism mechanism 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	mechanism mechan	ON OFF ON OFF OFF OFF	ON ON OFF ON OFF OFF OFF OFF OFF OFF	ON ON OFF ON OFF OFF OFF OFF OFF OFF OFF	ON ON OFF ON OFF OFF OFF OFF OFF OFF	ON ON OFF OFF OFF OFF OFF OFF OFF OFF OF	ON ON OFF OFF OFF OFF OFF OFF OFF OFF OF

	SWITCH 2 (3N)										
	1	2	3	4	5	6	7	, 8			
6 0	ON	X	X						Normal "H.S."		
score S.)	OFF	OFF	ON						Low "H.S 10000-11500		
	OFF	ON	OFF			,			Med.low "HS 12500+14000		
High (H.	OFF	OFF	OFF						Med.high[H.S.]15000+16500		
Ξ	OFF	ON	ON						High "HS"17500÷19000		
90				ON	ON				Easy game		
Game difficultie				OFF	ON				Medium game		
				ON	OFF				Difficult game		
) <u>;</u>				OFF	OFF				Very difficult game		
p						ON	ON		No extended		
Extended play						OFF	ON		5500 points 1 rocket		
p g						ON	OFF		7500 points 1rocket		
ũ						OFF	OFF		9500 points 1 rocket		
AL								ON	Rocket leaves the screen		
è								OFF	Rocket stops at sides		
OPTIONAL					Note	: X	*	ON or	OFF condition is the same		

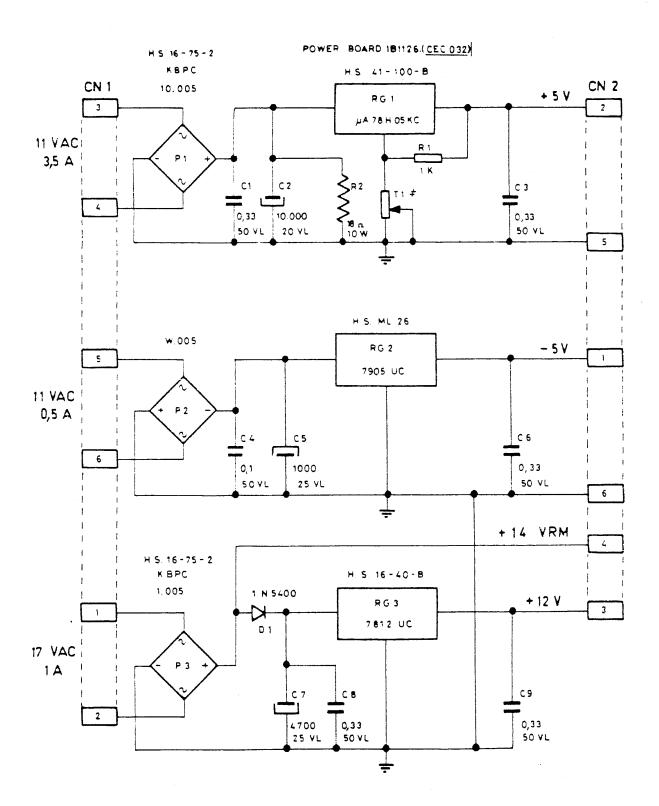
				SOUND	SWITCH	
1 ,	2	, 3	4	1		Notes:
ON				Test		1) Switch 2 is not used
OFF		ON	OFF	Quasar	Sound	2) Do Not use other comb



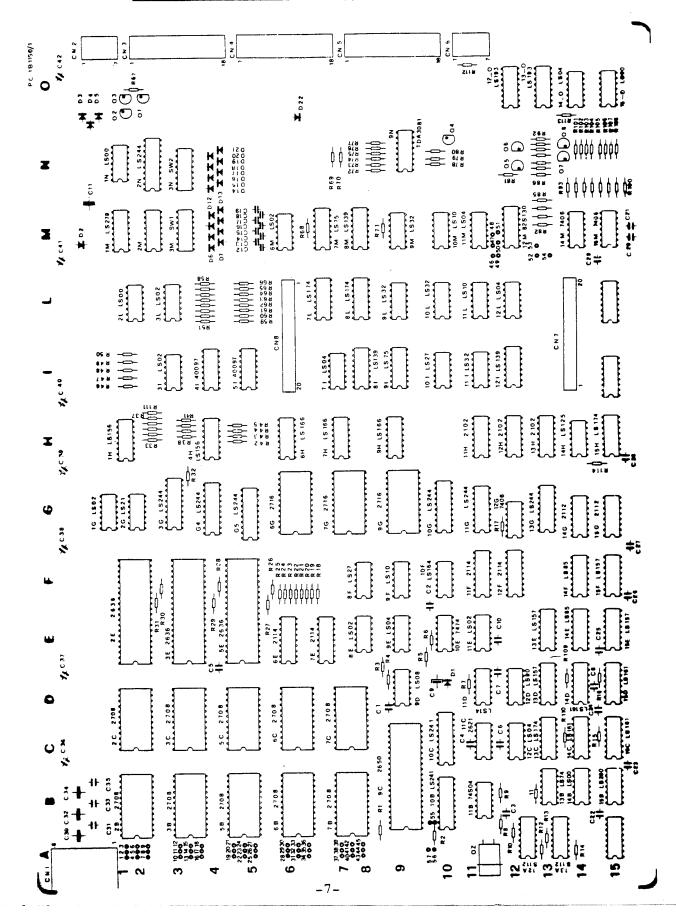
POWER TRANSFORMER FOR QUASAR



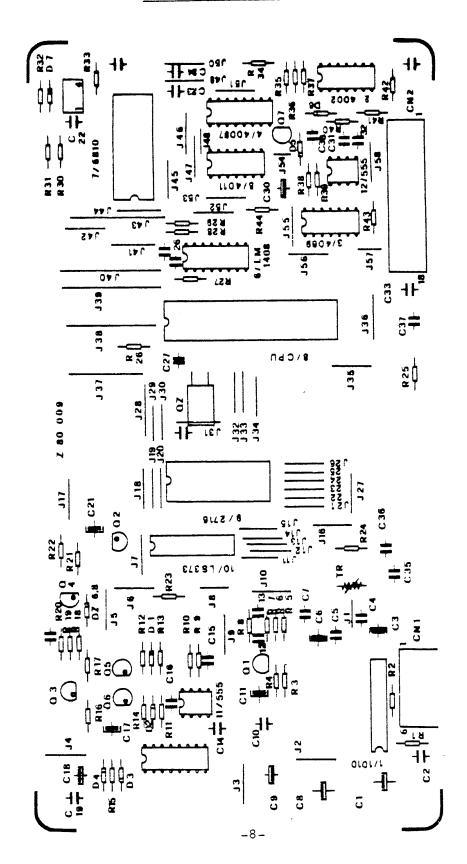
POWER SUPPLY FOR QUASAR



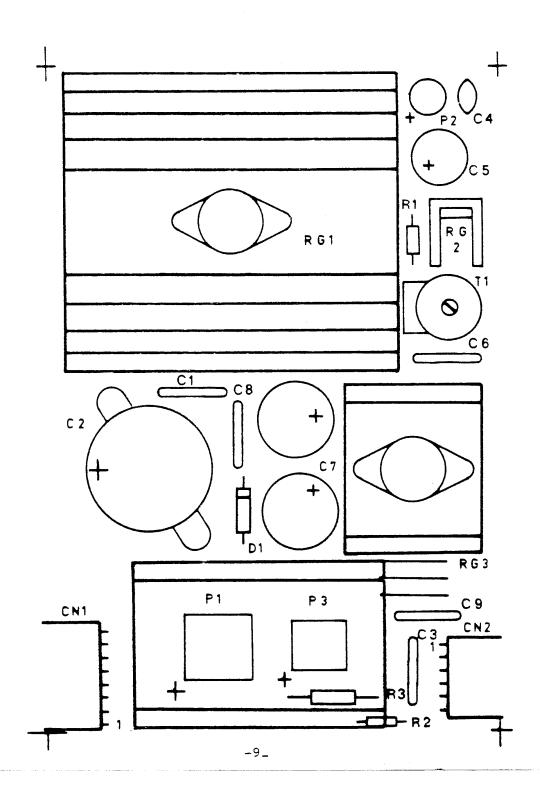
. 47 A TRIMMER or 22 A 1/4 W 5% RESISTOR



AUDIO BOARD FOR QUASAR



POWER SUPPLY PARTS LAYOUT DIAGRAM - QUASAR



PARTS LISTING - QUASAR

Part #	Description						
521 335 338 7002 11700 11701 11702 11703 11704 11705 11706 11707 11708 11709 11710 11711 11712	Coin Chute (25¢) Dutch Cash Door, Frame with Cash Box Cash Box Only for Dutch Cash Door Leg Leveler - each Back Service Door Speaker Grill - 6"x9" TV Monitor Cardboard Mask TV Monitor Cardboard Side Panel - Right TV Monitor Cardboard Side Panel - Left Plastic Header Screened Instruction Decal Front Plastic Window - 23-1/2x17-1/2x3/16 Frame for Front Plastic Window Decal, Side - Right Decal, Side - Left Instruction Manual Schematic Booklet						
METAL PARTS							
11763 11713 11762 11714 11715 11716 11717 11718	Control Panel complete with buttons Control Panel with graphics without buttons Graphics alone for Control Panel California Switch Bracket PC Board perforated metal screen Plastic Header Holding Spring Rear Monitor Support Strap Rear Monitor Plate						
TRIM_							
11719 11720 11721	Black T-Moulding for one side - 128" Aluminum Trim - 24" Black T-Moulding - 24"						
LOCKS							
1486 1487	Random Lock with Key & Hardware #1150 Lock with Key & Hardware						
INSTRUCTIONS & LABELS							
2949	"Caution High Voltage"						

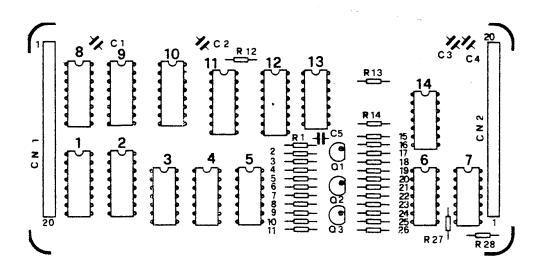
PARTS LIST - QUASAR (continued)

ELECTRICAL PARTS

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11722
                    Complete Game Board
11723
                    Complete Audio Board
                    Bulb for Coin Chute - 63V
11724
                    Red Push Button Assembly (Fire)
11725
                   White Push Button Assembly (Player 1, Player 2)
11726
                   Green Push Button Assembly (Aim)
11727
                   Leaf Switch For Push Buttons & Holder Assembly
11728
                   Holder for Push Buttons
⊥1729
                   Color Monitor
11730
                    Speaker - 6"x9"
11731
                   Power Supply Complete
11732
                       P1, 50V, 10 Amp Bridge (KBPC 10-005)
P2, 50V, 1 Amp Bridge (W-005)
P3, 50V, 3 Amp Bridge (KBPC 1-005)
RG1, +5V, 5 Amp Regulator (MA 78HO5KC)
RG2, -5V, 1 Amp Regulator (MA 7905UC)
RG3, +12V, 1 Amp Regulator (MA 7812UC)
11733
11734
11735
11736
11737
11738
                       Dl, IN 5400 Diode
11739
                       C1, 2, 3, 6, 8, 9 - .33MF 50V Cap
11740
                       C2-10000MF 16V CAP
11741
                       C4-.1MF 50V CAP
11742
⊥1743
                       C5-100MF 25V CAP
                       C7-2200MF 25V CAP
11744
                       R1-1K ¼W
11745
                       R2-18 Ohm 20W
11746
                        T1-470 Ohm 1 Turn Vertical Trimmer (22 Ohm ¼ Watt)
11747
                    Transformer Group Complete
11748
                        110 or 220 Multitap Transformer - 2C 1005C
11749
                        110 to 220 Step Up Transformer - 130 VA
11750
                       Line Filter SIEMENS B81931-B-B1
11751
                       Fl Line Adjuster with 4A Fuse (Special Small Size)
11752
                       Fuses F2 4A
11753
                       Fuses F3 1.6A
11754
                       Fuses F4 2A
11755
                       Fuses F5 4A
11756
                       Fan - 220V B7240
11757
                       AC on Power Switch A4425
11758
                    California Switch - B5050
11759
                    Wiring Harness Complete
11760
                   Fluorescent Fixture
10110
                   Fluorescent Bulb
10111
                   6 Volt DC Counter
 2356
                   Triple Outlet
10529
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HARDWARE

		for Push			
1296	3/18-16	T-Nut Pr	conged (:	for Leg	Leveler)



Auxiliary Board on Game Mother Board for Quasar

